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NEWS	4	AUG 28	ADISCTI Reloaded and Enhanced
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NEWS	6	SEP 11	CA/CAplus enhanced with more pre-1907 records
NEWS	7	SEP 21	CA/CAplus fields enhanced with simultaneous left and right truncation
NEWS	8	SEP 25	CA(SM)/CAplus(SM) display of CA Lexicon enhanced
NEWS	9	SEP 25	CAS REGISTRY(SM) no longer includes Concord 3D coordinates
NEWS	10	SEP 25	CAS REGISTRY(SM) updated with amino acid codes for pyrrolysine
NEWS	11	SEP 28	CEABA-VTB classification code fields reloaded with new classification scheme
NEWS	12	OCT 19	LOGOFF HOLD duration extended to 120 minutes
NEWS	13	OCT 19	E-mail format enhanced
NEWS	14	OCT 23	Option to turn off MARPAT highlighting enhancements available
NEWS	15	OCT 23	CAS Registry Number crossover limit increased to 300,000 in multiple databases
NEWS	16	OCT 23	The Derwent World Patents Index suite of databases on STN has been enhanced and reloaded
NEWS	17	OCT 30	CHEMLIST enhanced with new search and display field
NEWS	18	NOV 03	JAPIO enhanced with IPC 8 features and functionality
NEWS	19	NOV 10	CA/CAplus F-Term thesaurus enhanced
NEWS	20	NOV 10	STN Express with Discover! free maintenance release Version 8.01c now available
NEWS	21	NOV 20	CAS Registry Number crossover limit increased to 300,000 in additional databases
NEWS	22	NOV 20	CA/CAplus to MARPAT accession number crossover limit increased to 50,000
NEWS	23	DEC 01	CAS REGISTRY updated with new ambiguity codes
NEWS	24	DEC 11	CAS REGISTRY chemical nomenclature enhanced
NEWS	25	DEC 14	WPIDS/WPINDEX/WPIX manual codes updated
NEWS	26	DEC 14	GBFULL and FRFULL enhanced with IPC 8 features and functionality
NEWS	27	DEC 18	CA/CAplus pre-1967 chemical substance index entries enhanced with preparation role
NEWS	28	DEC 18	CA/CAplus patent kind codes updated
NEWS	29	DEC 18	MARPAT to CA/CAplus accession number crossover limit increased to 50,000
NEWS	30	DEC 18	MEDLINE updated in preparation for 2007 reload
NEWS EXPRESS			NOVEMBER 10 CURRENT WINDOWS VERSION IS V8.01c, CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP), AND CURRENT DISCOVER FILE IS DATED 25 SEPTEMBER 2006.
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=> file caplus compendex inspec

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FILE 'INSPEC' ENTERED AT 15:23:19 ON 21 DEC 2006

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2 FILES SEARCHED...

L1 236555 DIFFUS? (S) (SENS? OR DETECT? OR MEASUR? OR MONITOR?)

=> s l1 and (channel or microchannel) (p) (sensor or detector or probe) (s) series

PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH

FIELD CODE - 'AND' OPERATOR ASSUMED 'OCHANNEL' (P) '

PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH

FIELD CODE - 'AND' OPERATOR ASSUMED 'OCHANNEL' (P) '

L2 29 L1 AND (CHANNEL OR MICROCHANNEL) (P) (SENSOR OR DETECTOR OR PROBE) (S) SERIES

=> s l2 and differential (8w) measur?

L3 3 L2 AND DIFFERENTIAL (8W) MEASUR?

=> s l2 and biochemical (8w) activit?

L4 0 L2 AND BIOCHEMICAL (8W) ACTIVIT?

=> display l3 1-3 ibib abs

L3 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:634848 CAPLUS

DOCUMENT NUMBER: 143:135312

TITLE: Description and Theoretical Analysis of a Differential Mobility Spectrometer

AUTHOR(S): Biskos, G.; Reavell, K.; Collings, N.

CORPORATE SOURCE: Department of Engineering, University of Cambridge,
Cambridge, UK
SOURCE: Aerosol Science and Technology (2005), 39(6), 527-541
CODEN: ASTYDQ; ISSN: 0278-6826
PUBLISHER: Taylor & Francis, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Elec. mobility anal. is the most efficient technique for measuring aerosol particle size distributions in the submicron size range. Recent advances in aerosol science underline the need of fast measurements of particle size spectra in this range, and therefore a great amount of effort is focused towards this direction. This paper provides the description and a theor. framework for the anal. of a fast-response differential mobility spectrometer (DMS). In common with other instruments of its category, it consists of a particle charger, a classification column, and a series of detectors. Passing the sample flow first through a corona-wire diffusion charger that sets a charge on the particles, the aerosol is introduced around the central rod of an inside-out cylindrical classifier equipped with a series of isolated electrode rings connected to sensitive electrometers. Current readings produced by deposition of the charged particles on the electrometer rings are then translated to particle number concns. corresponding to the elec. mobility range collected on every channel. Combining Fuchs' limiting-sphere theory to predict the number of charges on the particles downstream of the charger with a non-diffusing transfer function of the classifier, calcns. are presented of the kernel of the DMS, and how changing the operating conditions affects the overall performance of the instrument is shown.

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 2 OF 3 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 1996:5380802 INSPEC
DOCUMENT NUMBER: A1996-21-8760K-004; B1996-11-7510B-027
TITLE: Design considerations and initial performance of a 1.2 cm² beta imaging intra-operative probe
AUTHOR: Tornai, M.P.; (Sch. of Med., California Univ., Los Angeles, CA, USA), MacDonald, L.R.; Levin, C.S.; Siegel, S.; Hoffman, E.J.
SOURCE: 1995 IEEE Nuclear Science Symposium and Medical Imaging Conference Record (Cat. No.95CH35898), vol.3, 1995, p. 1791-5 vol.3 of 3 vol. li+1814 pp., 18 refs. Editor(s): Moonier, P.A. ISBN: 0 7803 3180 X Price: 0 7803 3180 X/96/\$5.00 Published by: IEEE, New York, NY, USA Conference: 1995 IEEE Nuclear Science Symposium and Medical Imaging Conference Record, San Francisco, CA, USA, 21-28 Oct. 1995
DOCUMENT TYPE: Conference; Conference Article
TREATMENT CODE: Practical
COUNTRY: United States
LANGUAGE: English

AN 1996:5380802 INSPEC DN A1996-21-8760K-004; B1996-11-7510B-027

AB A novel small area beta (β^+) detector is under development for nuclear emission imaging of surgically exposed radiolabeled tumor beds. The imaging device consists of an 0.5 mm thick+1.25 cm diameter CaF₂(Eu) scintillator disk coupled to a rigid bundle of 19, 2 mm diameter+5 cm long double clad optical fibers through a 1.7 mm polystyrene light diffuser. The detector size (1.2 cm²) was determined by the requirement to introduce the probe into small cavities, e.g. during

neurosurgical lesion resection, but large enough to produce images of clinical significance. Double clad optical fibers were utilized for both the front- and back-end components, and 75 photoelectrons were obtained through a 1.9 m long flexible optical fiber bundle with CaF₂(Eu), indicating that sufficient numbers of photoelectrons were detected at the PMT for positioning and energy information. The long flexible fibers guide the scintillation light to a Philips XP1700 series fiber optic faceplate, multi-channel PMT. The parallel MC-PMT outputs are fed into a variable gain, charge divider network and an i-V pre-amplifier/line driver network, whose resulting four outputs are digitized and histogrammed with standard Anger positioning logic. The various components in the imaging chain were optimized by both simulations and measurements. Line spread functions measured in the 10.8 mm FOV were 0.50 mm±0.038 mm and 0.55 mm±0.065 mm FWHM, in X and Y, respectively. For a 20% variation in pulse height, no variation in spatial resolution was observed. The differential uniformity was measured to be ±15.6% with 150 cts/pixel

L3 ANSWER 3 OF 3 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 1996:5371712 INSPEC
DOCUMENT NUMBER: A1996-20-8760K-033; B1996-10-7510B-215
TITLE: Design considerations and initial performance of a 1.2 cm² beta imaging intra-operative probe
AUTHOR: Tornai, M.P.; (Sch. of Med., California Univ., Los Angeles, CA, USA), MacDonald, L.R.; Levin, C.S.; Siegel, S.; Hoffman, E.J.
SOURCE: IEEE Transactions on Nuclear Science (Aug. 1996), vol.43, no.4, pt.1, p. 2326-35, 40 refs.
CODEN: IETNAE, ISSN: 0018-9499
SICI: 0018-9499(199608)43:4:1L.2326:DCIP;1-K
Price: 0018-9499/96/\$05.00
Published by: IEEE, USA
Conference: 1995 Nuclear Science Symposium and Medical Imaging (NSS/MIC), San Francisco, CA, USA, 21-28 Oct. 1995
DOCUMENT TYPE: Conference; Conference Article; Journal
TREATMENT CODE: Practical
COUNTRY: United States
LANGUAGE: English

AN 1996:5371712 INSPEC DN A1996-20-8760K-033; B1996-10-7510B-215

AB A novel small area beta ($\beta\pm$) detector is under development for nuclear emission imaging of surgically exposed, radiolabeled tumor beds. The imaging device front-end consists of a 0.5 mm thick by 1.25 cm diameter CaF₂(Eu) scintillator disk coupled to a rigid bundle of 2 mm diameter double clad optical fibers through a polystyrene light diffuser. The detector area (1.2 cm²) was determined by the requirement of introducing the probe into small cavities, e.g. during neuro-surgical lesion resection, but large enough to produce images of clinical significance. Flexible back-end optical fibers (1.9 m long) were coupled to the front-end components allowing 75 photo-electrons to be detected for mean beta energies of 250 keV, indicating that sufficient signal can be obtained with clinical beta emitters (e.g. ¹⁸F, ¹³¹I). The long flexible fibers guide the scintillation light to a Philips XP1700 series , fiber optic faceplate, Multi-Channel PMT. The parallel MC-PMT outputs are fed into a variable gain, charge divider network and an i-V pre-amplifier/line driver network, whose resulting four outputs are digitized and histogrammed with standard Anger positioning logic. The various components in the imaging chain were evaluated and optimized by both simulations and measurements. Line spread functions measured in the 10.8 mm FOV were 0.50 mm ±0.038 mm and 0.55 mm

± 0.065 mm FWHM in X and Y, respectively. A 20% variation in pulse height and minimal variation in spatial resolution was observed. The differential image uniformity was measured to be $\pm 15.6\%$ with 150 cts/pixel. Preliminary images show excellent reproduction of phantom activity distributions

=> display l2 1-29 ibib abs

L2 ANSWER 1 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:634848 CAPLUS

DOCUMENT NUMBER: 143:135312

TITLE: Description and Theoretical Analysis of a Differential Mobility Spectrometer

AUTHOR(S): Biskos, G.; Reavell, K.; Collings, N.

CORPORATE SOURCE: Department of Engineering, University of Cambridge, Cambridge, UK

SOURCE: Aerosol Science and Technology (2005), 39(6), 527-541
CODEN: ASTYDQ; ISSN: 0278-6826

PUBLISHER: Taylor & Francis, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Elec. mobility anal. is the most efficient technique for measuring aerosol particle size distributions in the submicron size range. Recent advances in aerosol science underline the need of fast measurements of particle size spectra in this range, and therefore a great amount of effort is focused towards this direction. This paper provides the description and a theor. framework for the anal. of a fast-response differential mobility spectrometer (DMS). In common with other instruments of its category, it consists of a particle charger, a classification column, and a series of detectors. Passing the sample flow first through a corona-wire diffusion charger that sets a charge on the particles, the aerosol is introduced around the central rod of an inside-out cylindrical classifier equipped with a series of isolated electrode rings connected to sensitive electrometers. Current readings produced by deposition of the charged particles on the electrometer rings are then translated to particle number concns. corresponding to the elec. mobility range collected on every channel. Combining Fuchs' limiting-sphere theory to predict the number of charges on the particles downstream of the charger with a non-diffusing transfer function of the classifier, calcns. are presented of the kernel of the DMS, and how changing the operating conditions affects the overall performance of the instrument is shown.

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 2 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:693165 CAPLUS

DOCUMENT NUMBER: 141:309123

TITLE: The permeability of gap junction channels to probes of different size is dependent on connexin composition and permeant-pore affinities

AUTHOR(S): Weber, Paul A.; Chang, Hou-Chien; Spaeth, Kris E.; Nitsche, Johannes M.; Nicholson, Bruce J.

CORPORATE SOURCE: Department of Biological Sciences, State University of New York at Buffalo, Buffalo, NY, 14260, USA

SOURCE: Biophysical Journal (2004), 87(2), 958-973
CODEN: BIOJAU; ISSN: 0006-3495

PUBLISHER: Biophysical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Gap junctions have traditionally been characterized as nonspecific pores

between cells passing mols. up to 1 kDa in mol. mass. Nonetheless, it has become increasingly evident that different members of the connexin (Cx) family mediate quite distinct physiol. processes and are often not interchangeable. Consistent with this observation, differences in permeability to natural metabolites have been reported for different connexins, although the phys. basis for selectivity has not been established. Comparative studies of different members of the connexin family have provided evidence for ionic charge selectivity, but surprisingly little is known about how connexin composition affects the size of the pore. We have employed a series of Alexa dyes, which share similar structural characteristics but range in size from mol. weight 350 to 760, to probe the permeabilities and size limits of different connexin channels expressed in *Xenopus* oocytes. Correlated dye transfer and elec. measurements on each cell pair, in conjunction with a three-dimensional math. model of dye diffusion in the oocyte system, allowed us to obtain single channel permeabilities for all three dyes in six homotypic and four heterotypic channels. Cx43 and Cx32 channels passed all three dyes with similar efficiency, whereas Cx26, Cx40, and Cx45 channels showed a significant drop-off in permeability with the largest dye. Cx37 channels only showed significant permeability for the smaller two dyes, but at two- to sixfold lower levels than other connexins tested. In the heterotypic cases studied (Cx26/Cx32 and Cx43/Cx37), permeability characteristics were found to resemble the more restrictive parental homotypic channel. The most surprising finding of the study was that the absolute permeabilities calculated for all gap junctional channels in this study are, with one exception, at least 2 orders of magnitude greater than predicted purely on the basis of hindered pore diffusion. Consequently, affinity between the probes and the pore creating an energetically favorable in-pore environment, which would elevate permeant concentration within the pore and hence the flux, is strongly implicated.

REFERENCE COUNT: 52 THERE ARE 52 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 3 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1964:466281 CAPLUS

DOCUMENT NUMBER: 61:66281

ORIGINAL REFERENCE NO.: 61:11475d-g

TITLE: Nuclear interactions in molecules

AUTHOR(S): Ramsey, Norman F.

CORPORATE SOURCE: Harvard Univ.

SOURCE: Sci. Progr. (New Haven) 13th Ser. (1963), 1960-61, 59-78

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB The mol. beam method is used. The mols. in the beam pass through a series of channels into the last region of the apparatus, where they are bombarded with electrons. Some of the mols. are ionized by the bombardment. These ions are then accelerated by elec. fields, deflected by a magnetic field which serves as a mass spectrometer, and focused onto the detector, an electron multiplier tube. The beam intensity is then measured by the current of the electron multiplier. By using series of channels and vacuum pumps, the unwanted mols., which diffuse from the source and would also be ionized by the detector, are eliminated. With this detector, all mols. which have so far been introduced into the apparatus have been successfully detected, and there should be no limitation to the detection of other mols. The interaction parameters for the mol. were obtained by devising a quant. theory and selecting the interaction parameters that gave the best agreement with the experiment, using a computer for the calcs. The spin-rotational interactions in kc./sec. which were reported are: H in H₂,

113.90 ± 0.03 ; H in HD, 85.60 ± 0.02 ; D in HD, 13.12 ± 0.02 ; D in D₂, 8.77 ± 0.03 ; H in HF, 71 ± 3 ; F in HF, -305 ± 2 ; F in DF, -160 ± 1 ; H in HCl, 41 ± 2 ; H in HBr, 43 ± 3 ; H in HI, 49.7 ± 1.0 ; F in CF₄, -6.0 ± 0.5 ; F in SF₆, -4.6 ± 1 ; H in C₂H₂, 4.8 ± 0.2 ; H in C₆H₆, $\ll 1$; H in HCN, 4.6 ± 1 ; H_{av} in CH₄, 10.4 ± 0.1 ; H_z in CH₄, 16.0 ± 1.6 ; and H_x in CH₄, 0.8 ± 3.2 . One application of the spin-rotational results is that they confirm a theory which showed a relation between spin-rotational interaction consts. and magnetic shielding. Other interaction parameters reported were: (1) elec. quadrupole in kc./sec. for D in D₂, 224.99 ± 0.10 ; D in HD, 224.54 ± 0.01 ; D in DF, 340 ± 40 ; and D in C₂D₂, 225 ± 30 ; (2) elec. dipole in D. for H+F-, 1.69 ± 0.05 ; and Li+H-, 5.7 ± 0.4 ; and (3) rotational moments in n.m. for H₂, 0.88291 ± 0.00008 ; HD, 0.66321 ± 0.00001 ; D₂, 0.44288 ± 0.00005 ; HF, 0.7392 ± 0.005 ; DF, 0.3695 ± 0.005 ; LiH, -0.642 ± 0.005 ; LiD, -0.266 ± 0.005 ; and NO, 48.2 ± 1.0 . From a comparison of the rotational magnetic moments of the same mol. with different isotopes, the elec. dipole moment of the mol. can be determined. Such an elec. dipole moment determination for LiH was given.

L2 ANSWER 4 OF 29 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 2005(52):233 COMPENDEX

TITLE: Microfabricated capped channels for biomolecular motor-based transport.

AUTHOR: Huang, Ying-Ming (Center for Thin Film Devices Department of Electrical Engineering Pennsylvania State University, University Park, PA 16802, United States); Uppalapati, Maruti; Hancock, William O.; Jackson, Thomas N.

SOURCE: IEEE Transactions on Advanced Packaging v 28 n 4 November 2005 2005.p 564-570

CODEN: ITAPFZ ISSN: 1521-3323

PUBLICATION YEAR: 2005

DOCUMENT TYPE: Journal

TREATMENT CODE: Theoretical

LANGUAGE: English

AN 2005(52):233 COMPENDEX

AB Kinesins are molecular motors that transport intracellular cargo along microtubules and provide a model system for force generation that can be exploited for biomotor powered nano- and micro-machines. To use this biological system for microscale transport, the most common approach is to reverse the biological geometry and move microtubules along surfaces functionalized with kinesin motors. The microtubules then become potential transport vehicles for sensors and lab-on-a-chip applications. A key requirement for extracting useful work from this system is confinement and control of microtubule movements over kinesin-coated surfaces. The open channel approaches used to date are limited because microtubules that lose contact with the kinesin motors rapidly diffuse away. As a step toward making stand-alone devices incorporating kinesin motors and microtubules, we have developed methods to fabricate capped channels that provide three-dimensional microtubule confinement. We first tested the activity of kinesin motors on a range of surfaces and found that motors were functional on a number of hydrophilic surfaces and nonfunctional on hydrophobic surfaces. In this work, SU-8 photoresist is used to fabricate open channels and a layer of bisbenzocyclobutene (BCB) or dry-film photoresist is used to encapsulate the channels. To allow sample introduction, we fabricate a hierarchical series of microfluidic channels. In this approach, macroscale ([similar to] 250- μ m) channels in glass or silicon substrates are used to hold fine-gauge stainless steel tubing and allow connection to various fluid sources and intermediate scale ([similar to] 50- μ m) channels fabricated in thick ([similar to] 50- μ m) dry-film photoresist are used to connect the

macroscale channels to microscale (1-15- μ m) SU-8 photoresist channels. This paper is the first demonstration of kinesin-based microtubule transport in enclosed microfluidic channels and provides an important step toward packaging these biomolecular motors into functional devices. \$CPY 2005 IEEE. 24 Refs.

L2 ANSWER 5 OF 29 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 2005(46):3858 COMPENDEX
TITLE: Studying protein aggregation by programmed flow field-flow fractionation using ceramic hollow fibers.
AUTHOR: Zhu, Ruohua (Polymer-Analysis Group Van't Hoff Institute for Molecular Sciences University of Amsterdam, 1018 WV Amsterdam, Netherlands); Frankema, Wijnbren; Huo, Yuli; Kok, Wim Th.
SOURCE: Analytical Chemistry v 77 n 14 Jul 15 2005 2005.p 4581-4586
CODEN: ANCHAM ISSN: 0003-2700
PUBLICATION YEAR: 2005
DOCUMENT TYPE: Journal
TREATMENT CODE: Experimental
LANGUAGE: English

AN 2005(46):3858 COMPENDEX

AB Ceramic hollow fibers have been used as separation channels for flow field-flow fractionation. The fibers were made of alpha-alumina, with a gamma-alumina layer on the inside wall acting as a semipermeable (ultrafiltration) membrane. The fibers and the separation system were tested by determining the diffusion coefficients of a series of standard proteins under various experimental conditions. Even for the smallest protein studied, a complete recovery from the fiber was obtained. A single fiber could be used for several months without problems such as leakage or fouling. The precision of the diffusion coefficient measurements was in the order of 5-10%. A good agreement with literature data was found. Programming of the cross-flow, with a time-delayed exponential decay program, was applied to extend the accessible size range for the sample components. With flow programming, the observed retention times increased linearly with the logarithm of the molar mass of proteins and aggregates, as predicted by theory. Heat-induced aggregation of beta-lactoglobulin (beta-LG) in aqueous solution was studied with the system. Upon heating, not only the extent of aggregation but also the size of the beta-LG aggregates was found to increase with the original concentration of beta-LG in solution and with the heating time. After heating in the presence of salt, very large aggregates were formed, with molar masses over 100 million. A multiangle light scattering detector was used to estimate molar masses and sizes of the protein aggregates. From the relation between the apparent diffusion coefficients and the molar masses of the aggregates, as well as from the ratio of the rms (scattering) and the hydrodynamic radii, it was concluded that the larger beta-LG aggregates behave as flexible chains in solution. \$CPY 2005 American Chemical Society. 43 Refs.

L2 ANSWER 6 OF 29 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 2005(44):8039 COMPENDEX
TITLE: Current distribution in PEM fuel cells. Part 1: Oxygen and fuel flow rate effects.
AUTHOR: Natarajan, Dilip (Dept. of Chemical and Petroleum Engineering University of Kansas, Lawrence, KS 66045, United States); Van Nguyen, Trung
SOURCE: AIChE Journal v 51 n 9 September 2005 2005.p 2587-2598
CODEN: AICEAC ISSN: 0001-1541
PUBLICATION YEAR: 2005
DOCUMENT TYPE: Journal

TREATMENT CODE: Experimental
LANGUAGE: English

AN 2005(44):8039 COMPENDEX

AB A segmented electrode/current collector setup was used to examine the effect of oxygen flow rate, anode sparger temperature, and hydrogen starvation on the spatial and temporal distribution of local current densities along a single gas channel in a PEM fuel cell operated on pure hydrogen and oxygen. Uniformity in local current densities at a given voltage was sustained over longer periods of time with higher oxygen flow rates that enhanced liquid water removal. When water removal rate was not sufficient, electrode flooding occurred in segments that were farthest from the gas inlet. Increasing anode sparger temperature resulted in reduction of water removal rate from the cathode by back diffusion leading to performance reduction of downstream segments. When fuel was in excess, the current density distribution was dominated by the hydration pattern of the membrane electrode assembly. When fuel supply was less than the electrochemical reaction demand, segments furthest from the inlet suffered fuel starvation, resulting in loss of performance. The use of one of the electrode segments as a novel in-line voltage sensor to reflect available reactant concentrations was also demonstrated. Air operation and effect of cell temperature were also examined and the results are presented in the second part of this series. \$CPY 2005 American Institute of Chemical Engineers. 22 Refs.

L2 ANSWER 7 OF 29 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 2005(31):1699 COMPENDEX

TITLE: Description and theoretical analysis of a differential mobility spectrometer.

AUTHOR: Biskos, G. (Division of Engineering and Applied Sciences Harvard University, Cambridge, MA 02138, United States); Reavell, K.; Collings, N.

SOURCE: Aerosol Science and Technology v 39 n 6 June 2005 2005.p 527-541

CODEN: ASTYDQ ISSN: 0278-6826

PUBLICATION YEAR: 2005

DOCUMENT TYPE: Journal

TREATMENT CODE: Theoretical; Experimental

LANGUAGE: English

AN 2005(31):1699 COMPENDEX

AB Electrical mobility analysis is the most efficient technique for measuring aerosol particle size distributions in the submicron size range. Recent advances in aerosol science underline the need of fast measurements of particle size spectra in this range, and therefore a great amount of effort has been focused towards this direction. This paper provides the description and a theoretical framework for the analysis of a fast-response differential mobility spectrometer (DMS). In common with other instruments of its category, it consists of a particle charger, a classification column, and a series of detectors. Passing the sample flow first through a corona-wire diffusion charger that sets a charge on the particles, the aerosol is introduced around the central rod of an inside-out cylindrical classifier equipped with a series of isolated electrode rings connected to sensitive electrometers. Current readings produced by deposition of the charged particles on the electrometer rings are then translated to particle number concentrations corresponding to the electrical mobility range collected on every channel. Combining Fuchs' limiting-sphere theory to predict the number of charges on the particles downstream of the charger with a nondiffusing transfer function of the classifier, we present calculations of the kernel of the DMS, and show how changing the operating conditions affects the overall performance of the instrument. Copyright \$CPY American Association for Aerosol Research. 28 Refs.

L2 ANSWER 8 OF 29 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 2004(24):3576 COMPENDEX

TITLE: Theoretical modeling and experimental evaluation of a microscale molecular mass sensor.

AUTHOR: Costin, Colin D. (Ctr. for Proc. Analyt. Chem. (CPAC) Department of Chemistry University of Washington, Seattle, WA 98195-1700, United States); McBrady, Adam D.; McDonnell, Milton E.; Synovec, Robert E.

SOURCE: Analytical Chemistry v 76 n 10 May 15 2004 2004.p 2725-2733

CODEN: ANCHAM ISSN: 0003-2700

PUBLICATION YEAR: 2004

DOCUMENT TYPE: Journal

TREATMENT CODE: Experimental

LANGUAGE: English

AN 2004(24):3576 COMPENDEX

AB A theoretical model for a recently developed microscale molecular mass sensor (μ -MMS) is presented. The μ -MMS employs a widely applicable technique of measuring the refractive index gradient (RIG) in a microchannel created after two adjacent streams merge: a "sample stream" containing analyte(s) of interest in a host solvent and a "mobile-phase" stream containing only the host solvent. Because the flow in the microchannel is laminar, the analytes in the sample stream mix with the mobile-phase stream primarily by diffusion. The diffusion-induced RIG in the microchannel is measured by monitoring the deflection angle of a diode laser probe beam, which is orthogonal to both the direction of flow and the direction of analyte diffusion. The μ -MMS samples the RIG with probe beams at two positions along the direction of flow, and the ratio of the downstream to the upstream signal monitors the diffusion coefficient. Following calibration for a given class of compounds, the molecular mass of an analyte of interest can be determined. Along with the analyte diffusion coefficient, the theoretical model indicated three other specific parameters are important to interpret the μ -MMS output: the radius of the interrogating light probe beams, the time intervals between each of the detection positions, and the merge point relative to the detection positions. A series of experiments were conducted at different beam radii and flow rates to investigate these parameters, and the results are consistent with the model. The model shows that by using smaller beam radii and altering flow rates the molecular mass range of the μ -MMS can be, in principle, tuned from less than 102 g/mol to greater than 10 8 g/mol. The ratio data from the μ -MMS is also demonstrated to readily provide a "universal calibration", from which the determination of unknown diffusion coefficients can be readily obtained. 20 Refs.

L2 ANSWER 9 OF 29 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 2003(46):677 COMPENDEX

TITLE: Diffusion coefficient measurement in a microfluidic analyzer using dual-beam microscale-refractive index gradient detection : Application to on-chip molecular size determination.

AUTHOR: Costin, Colin D. (Ctr. for Proc. Analytical Chemistry Department of Chemistry University of Washington, Seattle, WA 98195-1700, United States); Olund, Roy K.; Staggemeier, Bethany A.; Torgerson, Ana Kristine; Synovec, Robert E.

SOURCE: Journal of Chromatography A v 1013 n 1-2 Sep 26 2003 2003.p 77-91

CODEN: JCRAEY ISSN: 0021-9673

PUBLICATION YEAR: 2003
DOCUMENT TYPE: Journal
TREATMENT CODE: Theoretical; Experimental
LANGUAGE: English

AN 2003(46):677 COMPENDEX

AB We report a microchip-based detection scheme to determine the diffusion coefficient and molecular mass (to the extent correlated to molecular size) of analytes of interest. The device works by simultaneously measuring the refractive index gradient (RIG) between adjacent laminar flows at two different positions along a microchannel. The device, referred to as a microscale molecular mass sensor (μ -MMS), takes advantage of laminar flow conditions where the mixing of two streams occurs essentially by diffusion across the boundary between the two streams. Two flows merge on the microchip, one containing solvent only, referred to as the mobile phase stream and one which contains the analyte(s) of interest in the solvent, i.e. the sample stream. As these two streams merge and flow parallel to each other down the microchannel a RIG is created by the concentration gradient. The RIG is further influenced by analyte diffusion from the sample stream into the mobile phase stream. Measuring the RIG at a position close to the merging point (upstream signal) and simultaneously a selected distance further down the microchannel (downstream signal) provides real-time data related to the extent a given analyte has diffused, which can be readily correlated to analyte molecular mass by taking the ratio of the downstream-to-upstream signals. For the dual-beam RIG measurements, a diode laser output is coupled to a single mode fiber optic splitter with two output fibers. Light from each fiber passes through a graded refractive index (GRIN) lens forming a collimated beam that then passes through the microchannel and then on to a position sensitive detector (PSD). The RIG at both detection positions deflects the two collimated probe beams. The deflection angle of each beam is then measured on two separate PSDs. The μ -MMS was evaluated using polyethylene glycols (PEGs), sugars, and as a detector for size-exclusion chromatography (SEC). Peak purity can be readily identified using the μ -MMS with SEC. The limit of detection was 0.9 ppm (PEG at 11 840 g/mol) at the upstream detection position corresponding to a RI limit of detection (LOD) (3σ) of 7.10×10^{-8} RI. The pathlength for the RIG measurement was 200 μ m and the angular LOD was 0.23 mrad with a detection volume of 8 nL at both positions. The average molecular mass resolution was 9% (relative standard deviation) for a series of PEGs ranging in molecular mass from 106 to 22 800 g/mol. With this excellent mass resolution, small molecules such as monosaccharides, disaccharides, and so on, are readily distinguished. The sensor is demonstrated to readily determine unknown diffusion coefficients. $\$$ CPY 2003 Elsevier B.V. All rights reserved. 33 Refs.

L2 ANSWER 10 OF 29 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 2002(37):2556 COMPENDEX

TITLE: Characterizing the effects of natural clouds on scene simulations.

AUTHOR: Tofsted, David H. (Info. Sci. and Technol. Directorate U.S. Army Research Laboratory, WS Missile Range, NM 88002-5501, United States); O'Brien, Sean G.

MEETING TITLE: Targets and Backgrounds: Characterization and Representation III.

MEETING ORGANIZER: SPIE

MEETING LOCATION: Orlando, FL, United States

MEETING DATE: 21 Apr 1997-23 Apr 1997

SOURCE: Proceedings of SPIE - The International Society for Optical Engineering v 3062 1997.p 188-198

CODEN: PSISDG ISSN: 0277-786X
PUBLICATION YEAR: 1997
MEETING NUMBER: 59512
DOCUMENT TYPE: Conference Article
TREATMENT CODE: Theoretical
LANGUAGE: English

AN 2002(37):2556 COMPENDEX

AB In modeling and simulations the importance of the natural environment has always been recognized with regard to its influence on contrast transmission. However, the variability of surface illumination and solar loading due to broken clouds, the resulting impact of dynamic range on recognition, and clouds as backgrounds, along with the traditional influences due to transmission and path radiance, are emerging areas of relevance due to improvements in the modeling of these effects. The Air Force LOWTRAN model has been the traditional choice for multi-waveband analysis of spectral atmospheric effects on systems performance. But this code only has spatially varying effects in the vertical direction. Dynamic range impacts of horizontally variable illumination conditions cannot be addressed. We describe a series of codes designed to allow the linking of predictions of cloud fractions, base heights, layer depths, and layer cloud types with a model to predict the cloud density structure. These results are coupled to a radiative transfer model. We describe the salient features of this physics based model. We then describe the point-to-point calculation method to produce path radiance and transmittance statistics at multi-channel resolution. The weighted spectra are used to describe the effects on a given sensor channel. We further describe the perspective view generation method used to render cloudy scenes from a variety of observer positions. The radiative transfer model is robust in the sense that its results are not limited to low cloud densities. The spectral region covered is the same as that treated by LOWTRAN, since LOWTRAN output is used to initialize the upper boundary for incident direct (solar/lunar) and diffuse radiation sources and used to determine the background molecular absorption (by modeled layer) of the scattering volume. Typical scattering volumes treated have an 8 km*8 km footprint and are either 4 km, 8 km, or 16 km high. These volume choices can be used for additions of clouds as scene elements in simulations, usage of the surface illumination information as a positionally varying solar loading or brightness data set, and for path characterization for contrast transmission calculations. 12 Refs.

L2 ANSWER 11 OF 29 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 1995(8):2451 COMPENDEX
TITLE: High-resolution measurements of sand suspension by plunging breakers in a large wave channel.
AUTHOR: Dally, William R. (Florida Inst of Technology, Melbourne, FL, USA); Barkaszi, Stephen F.Jr.
MEETING TITLE: Proceedings of the International Conference on Coastal Dynamics.
MEETING ORGANIZER: Ministerio de Educacion y Ciencia (Spain); Office of Naval Research; Generalitat de Catalunya; Japan Society of Civil Engineers; E.T.S.d'Enginyers de Camins; et al
MEETING LOCATION: Barcelona, Spain
MEETING DATE: 21 Feb 1994-25 Feb 1994
SOURCE: Role of the Large Scale Experiments in Coastal Research Coastal Dynamics - Proceedings of the International Conference 1994.ASCE, New York, NY, USA.p 263-277
CODEN: 001654
PUBLICATION YEAR: 1994
MEETING NUMBER: 21487

DOCUMENT TYPE: Conference Article
TREATMENT CODE: Experimental
LANGUAGE: English

AN 1995(8):2451 COMPENDEX

AB A tightly spaced array of Optical Backscatterance Sensors was deployed in the outer surf zone of a large wave channel, to measure sediment suspension under regular, plunging breakers at high temporal and spatial resolution. Results show that in moving from the zone of shoaling, to the plunge point, and into the surf zone (a distance of only 7 m), the time series, spectrum, mean vertical profile, and depth-averaged suspended load all undergo remarkable change in structure and intensity. The data support a conceptual model in which 1) sand is convectively entrained at the plunge point to create suspension clouds, 2) the clouds are then advected back-and-forth by the oscillatory wave motion and offshore by the undertow, 3) the clouds are remixed by turbulence that is either locally generated or advected by the undertow, and 4) shoreward of the plunge point where breaking is fully developed, entrainment becomes a diffusive process. (Author abstract) 5
Refs.

L2 ANSWER 12 OF 29 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 1992(6):85137 COMPENDEX

DOCUMENT NUMBER: 920681908

TITLE: Multiplexed sensor systems in quantitative FTIR process spectroscopy.

AUTHOR: Driver, Richard D. (Galileo Electro-Optics Corp., Sturbridge, MA, USA); Brubaker, D.; Downing, James N.; Leskowitz, Garrett M.; Stark, John D.

MEETING TITLE: Infrared Fiber Optics III.

MEETING ORGANIZER: SPIE - Int Soc for Opt Engineering, Bellingham, WA, USA

MEETING LOCATION: Boston, MA, USA

MEETING DATE: 05 Sep 1991-06 Sep 1991

SOURCE: Proceedings of SPIE - The International Society for Optical Engineering v 1591. Publ by Int Soc for Optical Engineering, Bellingham, WA, USA. p 263-274
CODEN: PSISDG ISSN: 0277-786X
ISBN: 0-8194-0722-4

PUBLICATION YEAR: 1992

MEETING NUMBER: 16355

DOCUMENT TYPE: Conference Article

TREATMENT CODE: Application; Experimental

LANGUAGE: English

AN 1992(6):85137 COMPENDEX DN 920681908

AB A series of FT-IR spectrometer-based remote sensing systems have been developed taking advantage of the new technology of IR transmitting optical fibers. The systems may be used to monitor the chemical composition of solid, liquid, and gas phase samples. An array of remote sensors may be interfaced to a single FT-IR spectrometer through a multifiber launch module. An optical channel selector (OCS) allows the sensors to be addressed with a single optomechanically multiplexed detector system. Remote collimated beam sensors have been developed for web monitoring and liquid and gas phase sensing. An optimized multidetector web monitoring system has been developed for moving web sensing on optically diffuse webs. Quantitative data are presented for a number of remote spectroscopic measurements. 8
refs.

L2 ANSWER 13 OF 29 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 1992(4):3316 COMPENDEX

DOCUMENT NUMBER: 920452447

TITLE: ScaRaB Earth radiation budget scanning radiometer.
AUTHOR: Monge, J.L. (CNRS/Lab.Meteorologique Dynamique, Palaiseau Cedex, France); Kandel, Robert S.; Pakhomov, L.A.; Bauche, B.
MEETING TITLE: Future European and Japanese Remote-Sensing Sensors and Programs.
MEETING ORGANIZER: SPIE - Int Soc for Opt Engineering, Bellingham, WA, USA
MEETING LOCATION: Orlando, FL, USA
MEETING DATE: 01 Apr 1991-02 Apr 1991
SOURCE: Proceedings of SPIE - The International Society for Optical Engineering v 1490. Publ by Int Soc for Optical Engineering, Bellingham, WA, USA.p 84-93
CODEN: PSISDG ISSN: 0277-786X
ISBN: 0-8194-0599-X
PUBLICATION YEAR: 1991
MEETING NUMBER: 15528
DOCUMENT TYPE: Conference Article
TREATMENT CODE: Experimental; Application
LANGUAGE: English

AN 1992(4):3316 COMPENDEX DN 920452447

AB In order to ensure that earth radiation budget measurements from space continue through the 1990s, France, Germany, and the USSR are developing a Scanning Radiometer for Radiation Balance (ScaRaB) to be flown on a series of METEOR-3 Soviet polar orbiting weather satellites. The instrument described in this paper comprises 2 broad channels (0.2-50 μ m, 0.2-4 μ m) for radiation budget, and 2 narrower bands (0.5-0.7 μ m, 10.5-12.5 μ m) for scene identification, with spatial resolution at nadir on the order of 50 km. The set of on-board sources includes blackbody simulators for the calibration of long-wave channels, and both tungsten filament lamps and mosaic array diffusors for short-wave calibration. A specific filtering scheme cancels the influence of thermal environment during calibration of the 0.2-50 μ m channel on solar diffusors and lamps. Hemispherical choppers associated with pyroelectric detectors ensure a high immunity to low-frequency noise and thermal transients.

L2 ANSWER 14 OF 29 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 1992(3):395 COMPENDEX
DOCUMENT NUMBER: 920338614
TITLE: ScaRaB earth radiation budget scanning radiometer.
AUTHOR: Monge, J.L. (CNRS, Palaiseau, Fr); Kandel, R.; Pakhomov, L.A.; Adasko, V.I.
MEETING TITLE: New Developments and Applications in Optical Radiometry III.
MEETING LOCATION: Davos, Switz
MEETING DATE: Sep 1990
SOURCE: Metrologia v 28 n 3 Sep 1991.p 261-264
CODEN: MTRGAU ISSN: 0026-1394
PUBLICATION YEAR: 1991
MEETING NUMBER: 15784
DOCUMENT TYPE: Journal
TREATMENT CODE: Experimental; Application
LANGUAGE: English

AN 1992(3):395 COMPENDEX DN 920338614

AB In order to ensure that Earth Radiation Budget measurement from space continues through the 1990s. France, Germany and the USSR are developing a Scanning Radiometer for Radiation Balance (ScaRaB) to be flown on a series of METEOR-3 Soviet polar orbiting weather satellites. The instrument described in this paper comprises two broad channels (0,2 μ m, to 50 μ m, 0,2 μ m to 4 μ m) for radiation

budget, and two narrower bands (0,5 μm to 0,7 μm , 10,5 μm to 12,5 μm) for scene identification, with spatial resolution at nadir of order 50 km. The set of on-board sources includes black-body simulators for the calibration of long-wave channels, and both tungsten filament lamps and mosaic array diffusers for short-wave calibration. A specific filtering scheme cancels the influence of thermal environment during calibration of the 0.2 μm to 50 μm channel on solar diffusers and lamps. Hemispherical choppers associated with pyroelectric detectors ensure a high immunity to low frequency noise and thermal transients. (Author abstract) 5 Refs.

L2 ANSWER 15 OF 29 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 1991(11):145462 COMPENDEX
DOCUMENT NUMBER: 9111143074
TITLE: Development of a large pixel, spectrally optimized, pinned photodiode/interline CCD detector for the Earth Observing System/Moderate-Resolution Imaging Spectrometer-Tilt Instrument.
AUTHOR: Ewin, Audrey J. (NASA/Goddard Space Flight Cent., Greenbelt, MD, USA); Jhabvala, Murzy; Shu, Peter K.
MEETING TITLE: Surveillance Technologies.
MEETING ORGANIZER: SPIE - Int Soc for Opt Engineering, Bellingham, WA, USA; AIAA
MEETING LOCATION: Orlando, FL, USA
MEETING DATE: 02 Apr 1991-05 Apr 1991
SOURCE: Proceedings of SPIE - The International Society for Optical Engineering v 1479. Publ by Int Soc for Optical Engineering, Bellingham, WA, USA. p 12-20
CODEN: PSISDG ISSN: 0277-786X
ISBN: 0-8194-0588-4
PUBLICATION YEAR: 1991
MEETING NUMBER: 15299
DOCUMENT TYPE: Conference Article
TREATMENT CODE: Experimental; Application
LANGUAGE: English

AN 1991(11):145462 COMPENDEX DN 9111143074

AB A pinned photodiode/interline CCD detector array is under development for the EOS/MODIS-T project. Outstanding features of the device include large pixels, spectrally optimized fill factors, and blooming protection. The detector has 30 spatial rows and 32 spectral columns. The device layout is split into two halves. Each half has its own detector area, storage area, and output structure. The detector area contains the array of 161.7 μm by 220.5 μm pixels with two light sensitive photodiodes per pixel. The diodes are pinned to improve image lag and quantum efficiency. The interline CCD and antiblooming structures are connected in series to the photodiodes. The interline CCD is a four-phase transfer device which combines signal charge from both photodiodes of a detector pixel. The channel width of the interline CCD in each column is dimensioned to optimize the device fill factor in the corresponding spectral band. Each storage area contains a CCD register capable of holding signal from half of the detector. These CCDs are designed to provide an interface between the interline CCD channels (pitch greater than 200 μm) and the output register pixels (pitch equals 52 μm). Each output register is a serial CCD that accepts charge packets in parallel from the storage areas. Charge packets are transferred to a floating diffusion output which converts the signal charge to a voltage difference. The 51 pad silicon chip is about a half inch square and fits into a standard 64 pin DIP package for testing.

L2 ANSWER 16 OF 29 COMPENDEX COPYRIGHT 2006 EEI on STN

ACCESSION NUMBER: 1987(12):198619 COMPENDEX

TITLE: USE OF SATELLITE OCEAN COLOR OBSERVATIONS FOR BASIN
 AND GLOBAL SCALE STUDIES OF BIOGEOCHEMICAL CYCLES.
 AUTHOR: Esaias, Wayne E. (NASA, Greenbelt, MD, USA)
 MEETING TITLE: IGARSS '87.Remote Sensing: Understanding the Earth as
 a System.
 MEETING ORGANIZER: IEEE Geoscience & Remote Sensing Soc, New York, NY,
 USA; Int Union of Radio Science, Commission F,
 Brussels, Belg
 MEETING LOCATION: Ann Arbor, MI, USA
 MEETING DATE: 18 May 1987-21 May 1987
 SOURCE: Digest - International Geoscience and Remote Sensing
 Symposium (IGARSS) 1987.Publ by IEEE, New York, NY,
 USA.Available from IEEE Service Cent (Cat n
 98CH2434-9), Piscataway, NJ, USA p 137
 CODEN: IGRSE3
 PUBLICATION YEAR: 1987
 MEETING NUMBER: 10379
 DOCUMENT TYPE: Conference Article
 LANGUAGE: English
 AN 1987(12):198619 COMPENDEX
 AB Summary form only given.Goddard Space Flight Center is processing all
 Coastal Zone Color Scanner (CZCS) data collected from 1979-1986 to analyze
 ocean phytoplankton pigment concentration and diffuse
 attenuation coefficients.The 800-m resolution data are mapped to an 18-km
 global grid to produce daily mosaics which are then composited to give
 weekly and monthly averages.Prototype monthly composites of the North
 Atlantic and world oceans have been available for some time.The next goal
 is completion of a 3-yr data set for the North Atlantic Ocean Basin
 (1979-1981), after which the remainder of the data will be processed in
 global, consecutive order.Procedures and schedules for processing,
 archiving, and accessing these data are presented.It is argued for the
 rapid resumption of satellite ocean color observations, using improved
 sensor designs embodied in the cWiFS, OCI, and/or MODIS-T
 instruments, to overcome the inherent CZCS coverage and spectral
 channel limitations and to continue this unique earth science time
 series in the time frame of the Global Ocean Flux Study (GOFS)
 field years.

L2 ANSWER 17 OF 29 INSPEC (C) 2006 IET on STN
 ACCESSION NUMBER: 2005:8646313 INSPEC
 TITLE: Microfabricated capped channels for
 biomolecular motor-based transport
 AUTHOR: Ying-Ming Huang; Uppalapati, M.; Hancock, W.O.;
 (Dept. of Bioeng., Pennsylvania State Univ.,
 University Park, PA, USA), Jackson, T.N.
 SOURCE: IEEE Transactions on Advanced Packaging (Nov. 2005),
 vol.28, no.4, p. 564-70, 24 refs.
 CODEN: ITAPFZ, ISSN: 1521-3323
 SICI: 1521-3323(200511)28:4L:564:MCCB;1-9
 Price: 1521-3323/\$20.00
 Published by: IEEE, USA
 DOCUMENT TYPE: Journal
 TREATMENT CODE: Practical; Experimental
 COUNTRY: United States
 LANGUAGE: English
 AN 2005:8646313 INSPEC
 AB Kinesins are molecular motors that transport intracellular cargo along
 microtubules and provide a model system for force generation that can be
 exploited for biomotor powered nano- and micro-machines. To use this
 biological system for microscale transport, the most common approach is
 to reverse the biological geometry and move microtubules along surfaces
 functionalized with kinesin motors. The microtubules then become

potential transport vehicles for sensors and lab-on-a-chip applications. A key requirement for extracting useful work from this system is confinement and control of microtubule movements over kinesin-coated surfaces. The open channel approaches used to date are limited because microtubules that lose contact with the kinesin motors rapidly diffuse away. As a step toward making stand-alone devices incorporating kinesin motors and microtubules, we have developed methods to fabricate capped channels that provide three-dimensional microtubule confinement. We first tested the activity of kinesin motors on a range of surfaces and found that motors were functional on a number of hydrophilic surfaces and nonfunctional on hydrophobic surfaces. In this work, SU-8 photoresist is used to fabricate open channels and a layer of bisbenzocyclobutene (BCB) or dry-film photoresist is used to encapsulate the channels. To allow sample introduction, we fabricate a hierarchical series of microfluidic channels. In this approach, macroscale (250- μm) channels in glass or silicon substrates are used to hold fine-gauge stainless steel tubing and allow connection to various fluid sources and intermediate scale (50- μm) channels fabricated in thick (50- μm) dry-film photoresist are used to connect the macroscale channels to microscale (1-15- μm) SU-8 photoresist channels. This paper is the first demonstration of kinesin-based microtubule transport in enclosed microfluidic channels and provides an important step toward packaging these biomolecular motors into functional devices

L2 ANSWER 18 OF 29 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 2004:8191855 INSPEC

DOCUMENT NUMBER: A2005-01-8725D-011

TITLE: The permeability of gap junction channels to probes of different size is dependent on connexin composition and permeant-pore affinities

AUTHOR: Weber, P.A.; (State Univ. of New York, Buffalo, NY, USA), Hou-Chien Chang; Spaeth, K.E.; Nitsche, J.M.; Nicholson, B.J.

SOURCE: Biophysical Journal (Aug. 2004), vol.87, no.2, p. 958-73, 52 refs.

CODEN: BIOJAU, ISSN: 0006-3495

SICI: 0006-3495(200408)87:2L.958:PJCP;1-E

Price: 0006-3495/04/08/958/16\$2.00

Published by: Biophys. Soc, USA

DOCUMENT TYPE: Journal

TREATMENT CODE: Theoretical; Experimental

COUNTRY: United States

LANGUAGE: English

AN 2004:8191855 INSPEC DN A2005-01-8725D-011

AB Gap junctions have traditionally been characterized as nonspecific pores between cells passing molecules up to 1 kDa in molecular mass. Nonetheless, it has become increasingly evident that different members of the connexin (Cx) family mediate quite distinct physiological processes and are often not interchangeable. Consistent with this observation, differences in permeability to natural metabolites have been reported for different connexins, although the physical basis for selectivity has not been established. Comparative studies of different members of the connexin family have provided evidence for ionic charge selectivity, but surprisingly little is known about how connexin composition affects the size of the pore. We have employed a series of Alexa dyes, which share similar structural characteristics but range in size from molecular weight 350 to 760, to probe the permeabilities and size limits of different connexin channels expressed in *Xenopus* oocytes. Correlated dye transfer and electrical measurements on each cell pair, in conjunction with a three-dimensional mathematical

model of dye diffusion in the oocyte system, allowed us to obtain single channel permeabilities for all three dyes in six homotypic and four heterotypic channels. Cx43 and Cx32 channels passed all three dyes with similar efficiency, whereas Cx26, Cx40, and Cx45 channels showed a significant drop-off in permeability with the largest dye. Cx37 channels only showed significant permeability for the smaller two dyes, but at two- to sixfold lower levels than other connexins tested. In the heterotypic cases studied (Cx26/Cx32 and Cx43/Cx37), permeability characteristics were found to resemble the more restrictive parental homotypic channel. The most surprising finding of the study was that the absolute permeabilities calculated for all gap junctional channels in this study are, with one exception, at least 2 orders of magnitude greater than predicted purely on the basis of hindered pore diffusion. Consequently, affinity between the probes and the pore creating an energetically favorable in-pore environment, which would elevate permeant concentration within the pore and hence the flux, is strongly implicated

L2 ANSWER 19 OF 29 INSPEC (C) 2006 IET on STN
 ACCESSION NUMBER: 1999:6377455 INSPEC
 DOCUMENT NUMBER: A1999-22-8725D-011
 TITLE: Permeability of single nuclear pores
 AUTHOR: Keminer, O.; Peters, R. (Inst. fur Med. Phys. und Biophys., Munster Univ., Germany)
 SOURCE: Biophysical Journal (July 1999), vol.77, no.1, p. 217-28, 45 refs.
 CODEN: BIOJAU, ISSN: 0006-3495
 SICI: 0006-3495(199907)77:1L:PSNP;1-V
 Price: 0006-3495/99/07/217/12\$2.00
 Published by: Biophys. Soc, USA
 DOCUMENT TYPE: Journal
 TREATMENT CODE: Experimental
 COUNTRY: United States
 LANGUAGE: English

AN 1999:6377455 INSPEC DN A1999-22-8725D-011

AB In this first application of optical single transporter recording (OSTR), a recently established technique for optically monitoring the activity of single transporters in membrane patches (Tschodrich-Rotter and Peters, J. Microsc., volume 192, p. 114-25, 1998), the passive permeability of the nuclear pore complex (NPC) was measured for a homologous series of hydrophilic probe molecules. Nuclei were isolated from Xenopus oocytes and firmly attached to fillers containing small cylindrical pores. Transport through membrane patches spanning filter pores was measured by scanning microphotolysis. Thus the permeability coefficients of single NPCs were determined for fluorescently labeled dextrans of 4, 10, and 20 kDa. Dextrans of ≥ 40 kDa could not permeate the NPC. The data were consistent with a model in which the NPC contains a single diffusion channel. By application of established theories for the restricted diffusion through small pores, the diffusion channel was approximated as a cylinder with a radius of 4.4-6.1 nm (mean 5.35 nm). Because the transport rate constant of the single NPC was known, the equivalent length of the channel could be also determined and was found to be 40-50 nm (mean 44.5 nm). The symmetry of the NPC implies that a singular component such as the diffusion channel is located at the center of the NPC. Therefore a common transport pathway apparently mediates both passive and signal-dependent transport. To test this hypothesis, measurements of signal-dependent transport and of the mutual effects signal-dependent and passive transport may exert on each other are in progress

L2 ANSWER 20 OF 29 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 1998:5817549 INSPEC
DOCUMENT NUMBER: B1998-03-7950-004; C1998-03-7460-011
TITLE: Characterizing the effects of natural clouds on scene simulations
AUTHOR: Tofsted, D.H.; (Inf. Sci. & Technol. Directorate, US Army Res. Lab., White Sands Missile Range, NM, USA), O'Brien, S.G.
SOURCE: Proceedings of the SPIE - The International Society for Optical Engineering (1997), vol.3062, p. 188-98, 12 refs.
CODEN: PSISDG, ISSN: 0277-786X
SICI: 0277-786X(1997)3062L:188:CENC;1-Q
Price: 0277-786X/97/\$10.00
Published by: SPIE-Int. Soc. Opt. Eng, USA
Conference: Targets and Backgrounds: Characterization and Representation III, Orlando, FL, USA, 21-23 April 1997
Sponsor(s): SPIE
DOCUMENT TYPE: Conference; Conference Article; Journal
TREATMENT CODE: Practical; Experimental
COUNTRY: United States
LANGUAGE: English

AN 1998:5817549 INSPEC DN B1998-03-7950-004; C1998-03-7460-011

AB In modeling and simulations the importance of the natural environment has always been recognized with regard to its influence on contrast transmission. However, the variability of surface illumination and solar loading due to broken clouds, the resulting impact of dynamic range on recognition, and clouds as backgrounds, along with the traditional influences due to transmission and path radiance, are emerging areas of relevance due to improvements in the modeling of these effects. The Air Force LOWTRAN model has been the traditional choice for multi-waveband analysis of spectral atmospheric effects on systems performance. But this code only has spatially varying effects in the vertical direction. Dynamic range impacts of horizontally variable illumination conditions cannot be addressed. We describe a series of codes designed to allow the linking of predictions of cloud fractions, base heights, layer depths, and layer cloud types with a model to predict the cloud density structure. These results are coupled to a radiative transfer model. We describe the salient features of this physics based model. We then describe the point-to-point calculation method to produce path radiance and transmittance statistics at multi-channel resolution. The weighted spectra are used to describe the effects on a given sensor channel. We further describe the perspective view generation method used to render cloudy scenes from a variety of observer positions. The radiative transfer model is robust in the sense that its results are not limited to low cloud densities. The spectral region covered is the same as that treated by LOWTRAN and LOWTRAN output is used to initialize the upper boundary for incident direct (solar/lunar) and diffuse radiation source and used to determine the background molecular absorption (by modeled layer) of the scattering volume. Typical scattering volumes treated have an 8 km+8 km footprint and are either 4 km, 8 km, or 16 km high. These volume choices can be used for addition of clouds as scene elements in simulations, usage of the surface illumination information as a positionally varying solar loading or brightness data set, and for path characterization for contrast transmission calculations

L2 ANSWER 21 OF 29 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 1996:5380802 INSPEC
DOCUMENT NUMBER: A1996-21-8760K-004; B1996-11-7510B-027
TITLE: Design considerations and initial performance of a 1.2

cm2 beta imaging intra-operative probe
AUTHOR: Tornai, M.P.; (Sch. of Med., California Univ., Los Angeles, CA, USA), MacDonald, L.R.; Levin, C.S.; Siegel, S.; Hoffman, E.J.
SOURCE: 1995 IEEE Nuclear Science Symposium and Medical Imaging Conference Record (Cat. No.95CH35898), vol.3, 1995, p. 1791-5 vol.3 of 3 vol. 11+1814 pp., 18 refs.
Editor(s): Moonier, P.A.
ISBN: 0 7803 3180 X
Price: 0 7803 3180 X/96/\$5.00
Published by: IEEE, New York, NY, USA
Conference: 1995 IEEE Nuclear Science Symposium and Medical Imaging Conference Record, San Francisco, CA, USA, 21-28 Oct. 1995
DOCUMENT TYPE: Conference; Conference Article
TREATMENT CODE: Practical
COUNTRY: United States
LANGUAGE: English

AN 1996:5380802 INSPEC DN A1996-21-8760K-004; B1996-11-7510B-027

AB A novel small area beta ($\beta\pm$) detector is under development for nuclear emission imaging of surgically exposed radiolabeled tumor beds. The imaging device consists of an 0.5 mm thick+1.25 cm diameter CaF2(Eu) scintillator disk coupled to a rigid bundle of 19, 2 mm diameter+5 cm long double clad optical fibers through a 1.7 mm polystyrene light diffuser. The detector size (1.2 cm²) was determined by the requirement to introduce the probe into small cavities, e.g. during neurosurgical lesion resection, but large enough to produce images of clinical significance. Double clad optical fibers were utilized for both the front- and back-end components, and 75 photoelectrons were obtained through a 1.9 m long flexible optical fiber bundle with CaF2(Eu), indicating that sufficient numbers of photoelectrons were detected at the PMT for positioning and energy information. The long flexible fibers guide the scintillation light to a Philips XP1700 series fiber optic faceplate, multi-channel PMT. The parallel MC-PMT outputs are fed into a variable gain, charge divider network and an i-V pre-amplifier/line driver network, whose resulting four outputs are digitized and histogrammed with standard Anger positioning logic. The various components in the imaging chain were optimized by both simulations and measurements. Line spread functions measured in the 10.8 mm FOV were 0.50 mm \pm 0.038 mm and 0.55 mm \pm 0.065 mm FWHM, in X and Y, respectively. For a 20% variation in pulse height, no variation in spatial resolution was observed. The differential uniformity was measured to be \pm 15.6% with 150 cts/pixel

L2 ANSWER 22 OF 29 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 1996:5371712 INSPEC

DOCUMENT NUMBER: A1996-20-8760K-033; B1996-10-7510B-215

TITLE: Design considerations and initial performance of a 1.2 cm² beta imaging intra-operative probe

AUTHOR: Tornai, M.P.; (Sch. of Med., California Univ., Los Angeles, CA, USA), MacDonald, L.R.; Levin, C.S.; Siegel, S.; Hoffman, E.J.

SOURCE: IEEE Transactions on Nuclear Science (Aug. 1996), vol.43, no.4, pt.1, p. 2326-35, 40 refs.
CODEN: IETNAE, ISSN: 0018-9499
SICI: 0018-9499(199608)43:4:1L.2326:DCIP;1-K
Price: 0018-9499/96/\$05.00
Published by: IEEE, USA
Conference: 1995 Nuclear Science Symposium and Medical Imaging (NSS/MIC), San Francisco, CA, USA, 21-28 Oct.

1995

DOCUMENT TYPE: Conference; Conference Article; Journal
TREATMENT CODE: Practical
COUNTRY: United States
LANGUAGE: English

AN 1996:5371712 INSPEC DN A1996-20-8760K-033; B1996-10-7510B-215

AB A novel small area beta (β) detector is under development for nuclear emission imaging of surgically exposed, radiolabeled tumor beds. The imaging device front-end consists of a 0.5 mm thick by 1.25 cm diameter CaF₂(Eu) scintillator disk coupled to a rigid bundle of 2 mm diameter double clad optical fibers through a polystyrene light diffuser. The detector area (1.2 cm²) was determined by the requirement of introducing the probe into small cavities, e.g. during neuro-surgical lesion resection, but large enough to produce images of clinical significance. Flexible back-end optical fibers (1.9 m long) were coupled to the front-end components allowing 75 photo-electrons to be detected for mean beta energies of 250 keV, indicating that sufficient signal can be obtained with clinical beta emitters (e.g. ¹⁸F, ¹³¹I). The long flexible fibers guide the scintillation light to a Philips XP1700 series , fiber optic faceplate, Multi-Channel PMT. The parallel MC-PMT outputs are fed into a variable gain, charge divider network and an i-V pre-amplifier/line driver network, whose resulting four outputs are digitized and histogrammed with standard Anger positioning logic. The various components in the imaging chain were evaluated and optimized by both simulations and measurements. Line spread functions measured in the 10.8 mm FOV were 0.50 mm \pm 0.038 mm and 0.55 mm \pm 0.065 mm FWHM in X and Y, respectively. A 20% variation in pulse height and minimal variation in spatial resolution was observed. The differential image uniformity was measured to be \pm 15.6% with 150 cts/pixel. Preliminary images show excellent reproduction of phantom activity distributions

L2 ANSWER 23 OF 29 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 1993:4315899 INSPEC
DOCUMENT NUMBER: A1993-04-4281P-011; B1993-02-7230E-048
TITLE: Multiplexed sensor systems in quantitative FT-IR process spectroscopy
AUTHOR: Driver, R.D.; Brubaker, D.; Downing, J.; Leskowitz, G.; Stark, J. (Galileo Electro-Optic Corp., Sturbridge, MA, USA)
SOURCE: Proceedings of the SPIE - The International Society for Optical Engineering (1992), vol.1591, p. 263-74, 8 refs.
CODEN: PSISDG, ISSN: 0277-786X
Price: 0 8194 0722 4/92/\$4.00
Conference: Infrared Fiber Optics III, Boston, MA, USA, 5-6 Sept. 1991
Sponsor(s): SPIE

DOCUMENT TYPE: Conference; Conference Article; Journal
TREATMENT CODE: Practical; Experimental
COUNTRY: United States
LANGUAGE: English

AN 1993:4315899 INSPEC DN A1993-04-4281P-011; B1993-02-7230E-048

AB A series of FT-IR spectrometer based remote sensing systems have been developed taking advantage of the new technology of IR transmitting optical fibers. The systems may be used to monitor the chemical composition of solid, liquid and gas phase samples. An array of remote sensors may be interfaced to a single FT-IR spectrometer through a multi-fiber launch module. An optical channel selector allows the sensors to be addressed with a single opto-mechanically multiplexed detector system.

Remote collimated beam sensors have been developed for web monitoring and liquid and gas phase sensing. An optimized multi-detector web monitoring system has been developed for moving web sensing on optically diffuse webs. Quantitative data is presented for a number of remote spectroscopic measurements

L2 ANSWER 24 OF 29 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 1992:4085620 INSPEC
DOCUMENT NUMBER: A1992-06-9385-006; B1992-03-7710B-011
TITLE: The ScaRaB Earth radiation budget scanning radiometer
AUTHOR: Monge, J.L.; Kandel, R.; (Lab. de Meteorol. Dynamique, Ecole Polytech., Palaiseau, France), Pakhomov, L.A.; Adasko, V.I.
SOURCE: Metrologia (Sept. 1991), vol.28, no.3, p. 261-4, 5 refs.
CODEN: MTRGAU, ISSN: 0026-1394
Conference: New Developments and Applications in Optical Radiometry III, Davos, Switzerland, 20-22 Sept. 1990
DOCUMENT TYPE: Conference; Conference Article; Journal
TREATMENT CODE: Practical; Experimental
COUNTRY: France
LANGUAGE: English
AN 1992:4085620 INSPEC DN A1992-06-9385-006; B1992-03-7710B-011
AB In order to ensure that Earth Radiation Budget measurement from space continues through the 1990s, France, Germany and the USSR are developing a scanning radiometer for radiation balance (ScaRaB) to be flown on a series of METEOR-3 Soviet polar orbiting weather satellites. The instrument described comprises two broad channels (0.2 μm to 50 μm , 0.2 μm to 4 μm) for radiation budget, and two narrower bands (0.5 μm to 0.7 μm , 10.5 μm to 12.5 μm) for scene identification, with spatial resolution at nadir of order 50 km. The set of on-board sources includes black-body simulators for the calibration of long-wave channels, and both tungsten filament lamps and mosaic array diffusers for short-wave calibration. A specific filtering scheme cancels the influence of thermal environment during calibration of the 0.2 μm to 50 μm channel on solar diffusers and lamps. Hemispherical choppers associated with pyroelectric detectors ensure a high immunity to low frequency noise and thermal transients

L2 ANSWER 25 OF 29 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 1991:3818317 INSPEC
DOCUMENT NUMBER: A1991-028643
TITLE: Broadband reflectometry for the density profile and fluctuation measurements in the JT-60 Tokamak
AUTHOR: Fukuda, T.; Nagashima, K.; Konoshima, S.; Haraguchi, K.; Takahashi, T.; Nagashima, A.; Matoba, T. (JAERI, Ibaraki, Japan)
SOURCE: Review of Scientific Instruments (Nov. 1990), vol.61, no.11, p. 3524-7, 14 refs.
CODEN: RSINAK, ISSN: 0034-6748
Price: 0034-6748/90/113524-04\$02.00
DOCUMENT TYPE: Journal
TREATMENT CODE: Practical
COUNTRY: United States
LANGUAGE: English
AN 1991:3818317 INSPEC DN A1991-028643
AB A broadband reflectometric system in O-mode operation has been developed for the density profile determination, MHD and turbulent fluctuation measurement, and evaluation of the particle diffusion

coefficient in the JT-60 tokamak. For the profile determination, full Ka-Q band frequencies of BWOs have been swept in 750 μ s, in order to minimize the effect of Doppler shift due to the fluctuation of reflection layers. The heterodyne fixed-frequency reflectometer has unveiled its effectiveness to probe MHD activities, diagnosing the m=1 tearing mode oscillations. It has also enabled the observation of the dramatic suppression of edge plasma density fluctuations at the L- to H-mode transition in the LHCD limiter plasma. Furthermore, the propagation delay of density pulses has been observed by different fixed-frequency channels during a series of sawteeth, from which the particle diffusion coefficient was evaluated, with a newly proposed method applicable to fully diffusion plasmas

L2 ANSWER 26 OF 29 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 1991:3818282 INSPEC
DOCUMENT NUMBER: A1991-028611
TITLE: Broadband reflectometry for the density profile and fluctuation measurements in the JT-60 Tokamak
AUTHOR: Fukuda, T.; Nagashima, K.; Konoshima, S.; Haraguchi, K.; Takahashi, T.; Nagashima, A.; Matoba, T. (Naka Fusion Res. Establ., JAERI, Ibaraki, Japan)
SOURCE: Review of Scientific Instruments (Oct. 1990), vol.61, no.10, pt.2, p. 3074, 0 refs.
CODEN: RSINAK, ISSN: 0034-6748
Price: 0034-6748/90/103074-01\$02.00
Conference: 8th Topical Conference on High Temperature Plasma Diagnostics, Hyannis, MA, USA, 6-10 May 1990
DOCUMENT TYPE: Conference; Conference Article; Journal
TREATMENT CODE: Practical; Experimental
COUNTRY: United States
LANGUAGE: English
AN 1991:3818282 INSPEC DN A1991-028611
AB Summary form only given, as follows. A broadband reflectometric system in O-mode operation has been developed for the density profile determination, MHD and turbulent fluctuation measurement, and evaluation of the particle diffusion coefficient in the JT-60 Tokamak. For the profile determination, full Ka-Q band frequencies of BWOs have been swept in 750 μ s, in order to minimize the effect of Doppler shift due to the fluctuation of reflection layers. The heterodyne fixed-frequency reflectometer has unveiled its effectiveness to probe MHD activities, diagnosing the m=1 tearing mode oscillations. It has also enabled the observation of the dramatic suppression of edge plasma density fluctuations at the L to H-mode transition in the LHCD limiter plasma. Furthermore, the propagation delay of density pulses has been observed by different fixed-frequency channels during a series of sawteeth, from which the particle diffusion coefficient was evaluated, with a newly proposed method applicable to fully diffusive plasmas

L2 ANSWER 27 OF 29 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 1990:3564681 INSPEC
DOCUMENT NUMBER: A1990-037661
TITLE: A far ultraviolet rocket-borne spectrograph
AUTHOR: Cash, W.; Cook, T.; Chambellan, C.; Heyse, D.; Hofmockel, D.; Snow, T.P.; Windt, D.; Zaidins, C. (Center for Astrophys. & Space Astron., Colorado Univ., Boulder, CO, USA)
SOURCE: Experimental Astronomy (1989), vol.1, no.2, p. 123-43, 18 refs.ISSN: 0922-6435
DOCUMENT TYPE: Journal
TREATMENT CODE: Practical

COUNTRY: Netherlands

LANGUAGE: English

AN 1990:3564681 INSPEC DN A1990-037661

AB A sensitive spectrograph for rocket observations of celestial objects in the 910-1250 Å band is described. The instrument incorporates a variety of new technologies that allow unprecedented sensitivity in this difficult, but scientifically rewarding, band. It includes a diamond-turned Wolter-Schwarzschild Type II telescope, a conventional Rowland Circle spectrograph, and resistive anode/micro-channel plate detectors. It has been launched twice from Woomera, Australia where it performed the only observations of SN 1987A in its bandpass and discovered a new feature in the diffuse ultraviolet background

L2 ANSWER 28 OF 29 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 1986:2726097 INSPEC

DOCUMENT NUMBER: B1986-053662

TITLE: Theory and experiment on the $1/f$ noise in p-channel metal-oxide-semiconductor field-effect transistors at low drain bias

AUTHOR: Surya, C.; Hsiang, T.Y. (Dept. of Electr. Eng., Rochester Univ., NY, USA)

SOURCE: Physical Review B (Condensed Matter) (1 April 1986), vol.33, no.7, p. 4898-905, 41 refs.

CODEN: PRBMDO, ISSN: 0163-1829

DOCUMENT TYPE: Journal

TREATMENT CODE: Theoretical; Experimental

COUNTRY: United States

LANGUAGE: English

AN 1986:2726097 INSPEC DN B1986-053662

AB Voltage noises with power spectra of the form $1/f$ were studied in a series of custom and commercial p-channel metal-oxide-semiconductor field-effect transistors. Detailed measurements of the time-correlation functions indicated that the noise originated from a stationary and gaussian source. The spatial correlation function measured in devices made with extra voltage probes placed in the conduction channels, showed no measurable amount of correlation down to a distance of 7 μm , excluding the possibility of a diffusion mechanism for the noise. The results, combined with the experimental data on the dependence of the noise power spectra on the bias conditions, led the authors to establish a simple model based on a variation of the 'McWhorter model' to account for the noise. Built into the model was an energy dependence of the trap concentration which in turn yielded a spatial dependent in the presence of a gate bias. This model explained quantitatively the experimentally observed change in the exponent γ of the noise spectrum as the gate bias was varied. It was then meaningful to compare the experimental and computed noise powers at a single, fixed frequency

L2 ANSWER 29 OF 29 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 1967:A08691 INSPEC

DOCUMENT NUMBER: 1967A08691

TITLE: Fast neutron latitude variations in the atmosphere at solar minimum

AUTHOR: Holt, S.S.; Mendell, R.B.; Korff, S.A.

SOURCE: Journal of Geophysical Research (1 Nov. 1966), vol. 71, no. 21, p. 5109-5116

DOCUMENT TYPE: Journal

COUNTRY: United States

LANGUAGE: English

AN 1967:A08691 INSPEC DN 1967A08691

AB The fast-neutron flux in the atmosphere has been measured during solar minimum. Data from ground level to about 4 g/cm² were obtained in a series of seven high-altitude balloon flights. The flights were conducted between September 1964 and August 1965 at four locations between $\lambda = 8^\circ\text{N}$ and $\lambda = 69^\circ\text{N}$, conventional geomagnetic latitude. The detector, a phoswich-type scintillator, was sensitive to neutrons in the range 1-10 MeV. A seven-channel pulse-height analyzer permitted the evaluation of the energy spectrum in this range. The neutron flux at the transition maximum increased from $0.17 \pm 0.02 \text{ cm}^{-2} \text{ sec}^{-1}$ at $\lambda = 8^\circ\text{N}$ to $1.9 \pm 0.1 \text{ cm}^{-2} \text{ sec}^{-1}$ at $\lambda = 69^\circ\text{N}$. Neutron leakage from the top of the atmosphere was estimated by extrapolation. The magnitudes of the leakage fluxes, as well as the pole-to-equator ratio of 16, were in substantial agreement with the results of the diffusion calculation of Lingenfelter (1963). The best fit to an inverse power law of the differential neutron energy spectrum was found to be independent of latitude within the limits of our experimental precision. Averaged over all flights, the best fit was for a spectral index of $n = 1.5 \pm 0.15$. This spectrum is harder than that calculated by Lingenfelter. Differences in the shapes of the neutron profiles of this experiment and of the calculation are consistent with the difference in spectrum.

	Type	L #	Hits	Search Text	DBs
1	BRS	L1	15158	diffus\$9 with (sensor or detector or monitor)	US-PGPUB; USPAT
2	BRS	L2	33	1 and (channel or microchannel) with (sensor or detector or probe) with series	US-PGPUB; USPAT
3	BRS	L3	4	2 and differential near8 measur\$9	US-PGPUB; USPAT